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J Acquir Immune Defic Syndr. Author manuscript; available in PMC 2014 November 21.

Published in final edited form as:
J Acquir Immune Defic Syndr. 2012 March 1; 59(3): e43–e46. doi:10.1097/QAI.0b013e3182414ed7.

Starting a Home and Mobile HIV Testing Service in a Rural Area of South Africa

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Abstract

Objective—To compare users of a home and mobile HIV counseling and testing service implemented in rural KwaZulu-Natal, South Africa.

Methods—Communities of similar population size and density were allocated HIV counseling and testing provision be either home or mobile services. Uptake of services was compared, including results from a brief questionnaire.

Results—Majority of individuals proceeded to test. Mobile services reported a higher proportion of clients who were male (41% vs. 31%; $P < 0.001$), younger than 25 years (53% vs. 28%; $P < 0.001$), single (66% vs. 40%; $P < 0.001$), and never previously tested (62% vs. 56%; $P = 0.003$). Home services reported a higher proportion of clients older than of 35 years (56% vs. 35%; $P < 0.001$) and married/partner (43% vs. 30%; $P < 0.001$). HIV prevalence amongst clients of the 2 services was comparable, with both services testing more clients daily than the local primary health care clinics, but similar to the local hospital.

Conclusions—The numbers tested, different populations reached, and high detection rates suggest both modalities have an important role to play, especially in rural communities where cost of transport may be a deterrent.

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The authors have no conflicts of interest to disclose.

The Hlabisa HIV Treatment and Care Program is made possible by the generous support of the American people through the United States Agency for International Development and the President's Emergency Plan (PEPFAR) under the terms of Award No 674-A-00-08-00001-00.

The opinions expressed herein are those of the authors and do not necessarily reflect the views of United States Agency for International Development or the United States Government.

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Keywords

HIV testing; home based; mobile based; resource constrained

INTRODUCTION

The HIV epidemic remains a serious burden on people and health services across the world, with 33 million people infected and 2.7 million people becoming infected annually.[1] HIV counseling and testing (HCT) is the critical first step in accessing HIV treatment and care; but despite efforts to scale up provision in resource-poor countries, an estimated 60% of people living with HIV are unaware of their HIV status.[2] Lack of confidentiality, social barriers, and cost and accessibility associated with testing at clinics has been associated with low testing rates.[3,4] The benefits of earlier initiation of antiretroviral treatment (ART)[5] and the potential role of treatment as an HIV prevention strategy[6] have added to the importance of improving uptake of HCT services.

Evidence from the South Africa region suggests that although scale-up of ART services has been successful, significant proportions still only seek care late, especially men.[7] This coupled with the high HIV incidence in the area,[8] and the need to address barriers to accessing HCT services, was the reason we introduced a community-based HCT service within the primary-care–based HIV treatment and care program. Although there has been considerable success with both home HCT[9-11] and mobile HCT,[3,12,13] we sought to compare users of the home and mobile HCT service to understand the contribution of either modality in the provision of HCT within the program.

METHODS

Study Context

The study was conducted between February and June 2009, when the home and mobile testing service was introduced in the Hlabisa subdistrict, KwaZulu-Natal. The HIV treatment and care program is a partnership between the Department of Health and the Africa Centre for Health and Population Studies. The area is predominantly rural with 1 local hospital and 17 primary health care (PHC) clinics serving a population of approximately 220,000 people, the mean travel time to the nearest clinic is 77 minutes,[14] HIV prevalence in the area is approximately 22% in adults, and HIV incidence overall is 3% per year.[15]

The home and mobile testing service started February 2009. The area was divided along traditional boundaries into smaller units using a geographical information system. Units of approximately equal population size and density were visited by either the home or mobile testing unit for a period of 2–20 days. Counselor supervisors determined time spent in each area; for home, till all households had been visited; for mobile, till further uptake was unlikely. The service was developed in close consultation with the local community. Before implementation, community mobilization and education was achieved through a series of meetings with local political and traditional leaders and distribution of information leaflets and road shows to market the service.

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The mobile testing unit had capacity to provide HCT for up to 6 clients at any one time in either a truck or in additional tents. The facility was set up at local community venues, chosen for convenience to the community and access to the greatest number of clients as possible, often near schools or shops. For home testing, a team of 6 HIV counselors visited every single household in the specified areas. Anyone reached by the testing units was also invited to participate in the questionnaire interview before HCT. Participants were provided with educational leaflets; condoms; and if tested HIV positive, referral letters to the local HIV clinic for further follow-up. All counseling and testing was performed in accordance with guidelines provided by the South African Department of Health.[16] Ethics approval was granted by the University of KwaZulu-Natal Humanities ethics committee (reference HSS/0727/08).

Data Collection and Analysis

Questionnaires recorded participant's demographic details, area where service was offered, subsequent uptake and outcome of HCT, and past use of HIV testing services. A Zulu translation of the questionnaires was provided to participants, with counselors completing the English version. Questionnaires were anonymous, with each participant given a unique identifier. Questionnaires were checked for completeness and data entered into a secure database. Descriptive analyses compared HCT utilization between those served by the mobile or home services. HIV prevalence rates, and 95% confidence interval, were calculated across baseline characteristics and evaluated for significant differences between the 2 services. All variables were categorical, and χ^2 or Fisher exact test was used to test for significant differences. Statistical analysis was performed with SPSS version 16 (SPSS, Chicago, IL).

Utilizing the Africa Centre geographical information system, we compared use of home and mobile testing services with the nearest fixed HCT facility where clients would otherwise have been tested; in 2 cases, the PHC clinic and for one, the nearest HCT facility was the regional hospital. We extracted programmatic data to determine use of HCT services at these facilities during the time period of the pilot.

RESULTS

From February to June 2009, 2774 participants completed the questionnaire, of whom 2598 (94%) accepted HIV testing (Table 1). Although high in both, a greater proportion of participants offered HCT proceeded to HIV testing with mobile than home testing (96.6% vs. 91.8%, 1013 vs. 1585; $P < 0.001$), whereas overall numbers of clients tested each day were higher in the home testing service (15.1 vs. 13.7; $P < 0.001$). Women accounted for a greater proportion of clients tested in both services; mobile services tested a higher proportion of men than home services (40.8% vs. 30.1%; $P < 0.001$). The mobile service tested a greater proportion of clients who were single (65.9% vs. 49.9%; $P < 0.001$), aged 15–24 years (52.8% v 27.6%; $P < 0.001$), and who had never previously had a HIV test (62.0% vs. 55.3%; $P < 0.001$); the home service tested a greater proportion of clients with a partner (42.8% vs. 29.8%; $P < 0.001$) and over the age of 25 years (72.4% vs. 47.2%; $P < 0.001$) (Table 1). HIV prevalence was comparable in clients receiving HCT through the

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home and mobile services (18.2% vs. 16.4%; $P = 0.257$), with no significant differences in HIV prevalence by gender, age, marital, or employment status.

Table 2 shows that in the region visited, where the nearest HCT facility was the hospital, the mobile and home services were seeing as many clients daily as the hospital. In the regions where the nearest HCT facility was at the PHC clinic, the home and mobile services were testing 5 times as many clients daily.

DISCUSSION

This study evaluated the characteristics of users of a home and mobile HCT service in a rural region of South Africa. The 2 services were seeing about 15 participants daily, with more than 90% consenting for a HIV test. Previous studies have compared home or mobile HCT services to fixed HCT services but not to each other. Consent rates following contacts in our study were comparable to rates in similar settings.[3,9] We found that a greater proportion of clients tested in the mobile HCT services were male, young, single, or never previously tested, whereas a greater proportion of clients tested in home HCT services were older, married/partner, or unemployed. Importantly, there was no evidence of significant differences by service type in HIV prevalence.

Young people younger than 25 years account for nearly 41% of new infections,[17] and for HIV prevention strategies to be effective, this age group needs to be targeted.[18] Over a half of the mobile testing clients were younger than 25 years and two-thirds were single which would suggest that utilizing mobile testing units as a vehicle for providing additional sexual health education, beyond that provided through HCT, may prove an effective prevention strategy.

Previous studies have shown that compared with traditional HCT services, home and mobile HCT attract a greater proportion of new testers but a lower proportion of clients who are HIV positive but unaware of their status.[10,12] We found that mobile HCT attracted a greater proportion of new testers than home HCT. The HIV prevalence amongst clients of our home and mobile services was comparable, and although similar to household surveillance data from the region,[15] was lower than amongst the clients of hospital and PHC clinics. Importantly, the home and mobile services were testing more clients daily than HCT services at the PHC clinics and comparable to HCT services at the hospital. The HCT service attached to the hospital, where a combination of provider-initiated and client-initiated testing takes place, is likely to test a large number of clients daily. The hospital is busy, serves the whole region, and provides care to sicker individuals.

This was a service evaluation and no client identifiers were recorded to allow investigation of linkage into HIV care and treatment services and further understanding of this is needed, especially whether linkage rates differ across modalities and whether linkage could be increased through providing simple interventions alongside posttest counseling. It is possible that those accessing the home and mobile services may have otherwise accessed HCT through their PHC clinic; however review of programmatic data suggests uptake of HCT through PHC clinics was relatively static.

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The lower uptake in some areas, especially with the mobile services, may be due adverse weather conditions deterring clients or units spending insufficient time in each location. The lower uptake in some areas visited by the home services may be due to residents not being at home on visits. In providing the mobile testing service, we tried to be adaptive and responded to usage. Mobile testing teams may have to accept that on certain days, use is minimal, but this should not deter from returning to the location on subsequent days. The 2 services were provided during standard working hours; and in providing a home testing service, it may be necessary to adapt service provision times if uptake is low.

In summary, we found that the home and mobile testing services were equally and highly acceptable amongst the population, especially amongst first-time users of HCT services. Importantly, clients of a home testing service differ from clients of a mobile testing service in terms of their age, gender, and marital status, with both being effective in reaching new testers and HIV-positive individuals who are unaware of their status. If the benefits of ART to prevent onward transmission[6,19] are to be realized, universal and regular HIV testing is essential. Achieving this may require both home and mobile testing services to be offered to communities.

Acknowledgments

The authors would like to acknowledge the contribution of Lungile Cira, program coordinator, and all the staff involved in the home and mobile testing service. The authors are grateful to all the Department of Health and Africa Centre staff working in the clinics and at the Centre—their dedication is humbling. Finally, the authors thank the community of Hlabisa subdistrict for hosting our initiatives.

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TABLE 1

Comparison of Results Participants Reached Through Home and Mobile Testing: Demographic Characteristics and HIV Test Results

	Number of Participants (% of Total)*			HIV Prevalence % (95% CI)		
	Home	**Mobile**	***P***	**Home**	**Mobile**	***P***
Participants approached	1726	1048	—			
Participants accepting HCT	1585 (91.8)	1013 (96.6)	<0.001	18.2 (16.3 to 20.1)	16.4 (14.1 to 18.7)	0.257
HCT clients per unit day	15.1	13.7	<0.001	—	—	
Gender						
Male	490 (30.9)	412 (40.7)	<0.001	16.4 (13.1 to 19.7)	13.3 (9.5 to 16.1)	0.193
Female	1095 (69.1)	601 (59.3)		19.0 (16.6 to 21.3)	18.6 (14.8 to 21.1)	0.848
Age group						
15–24	437 (27.6)	535 (52.8)	<0.001	11.9 (8.9 to 15.1)	9.0 (6.5 to 11.4)	0.153
25–34	259 (16.4)	125 (12.3)		36.7 (30.0 to 42.3)	35.5 (26.5 to 44.2)	0.825
35–44	177 (11.2)	100 (9.9)		34.9 (27.1 to 41.5)	31.3 (21.3 to 40.4)	0.551
45+	711 (44.9)	253 (25.0)		11.1 (8.6 to 13.2)	16.8 (11.0 to 20.3)	0.061
Marital status						
Single	776 (49.0)	669 (66.0)	<0.001	20.6 (17.6 to 23.4)	15.5 (12.8 to 18.4)	0.054
Married/partner	688 (43.4)	301 (29.7)		16.6 (13.7 to 19.3)	17.1 (11.8 to 20.3)	0.865
Widowed	121 (7.6)	43 (4.2)		8.4 (3.1 to 14.0)	23.3 (5.0 to 36.4)	0.065
Employment						
Employed	148 (9.4)	125 (12.6)	0.011	27.3 (18.9 to 33.6)	27.4 (18.9 to 34.8)	0.979
Unemployed	1426 (90.6)	869 (87.4)		17.2 (15.1 to 19.1)	14.5 (11.9 to 16.6)	0.087
Previous HIV test						
Yes	696 (44.0)	385 (38.1)	0.003	12.0 (9.8 to 14.1)	12.6 (9.3 to 14.5)	0.716
No	885 (56.0)	626 (61.9)		26.1 (22.8 to 29.4)	22.5 (18.2 to 26.8)	0.198

CI, confidence interval.

*Total numbers may not match exactly in all parts of the table because of missing data.

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TABLE 2

Use of HCT Services During Pilot Period

Region		Days in Operation	Clients Tested	HIV Positive	Clients Tested Daily (95% CI)	HIV Prevalence % (95% CI)
Area A	Home testing	35	434	66	12.4 (11.5 to 18.9)	15.2 (11.5 to 18.9)
	Mobile testing	29	340	41	11.7 (8.3 to 16.5)	12.1 (8.4 to 15.8)
	Hospital clinic	71	1050	436	14.8 (11.4 to 18.2)	41.5 (37.6 to 45.4)
Area B	Home testing	28	350	36	12.5 (7.9 to 17.1)	10.3 (6.9 to 13.6)
	Mobile testing	13	134	18	10.3 (4.7 to 15.9)	13.4 (7.2 to 19.6)
	PHC clinic	71	169	54	2.4 (1.8 to 2.9)	32.0 (23.4 to 40.5)
Area C	Home testing	42	801	181	19.1 (13.3 to 24.8)	22.6 (19.3 to 25.9)
	Mobile testing	32	539	106	16.8 (11.0 to 22.7)	19.7 (15.9 to 23.4)
	PHC clinic	71	366	132	5.2 (4.0 to 6.4)	36.1 (29.9 to 42.2)

CI, confidence interval; PHC, Primary Care Clinic.